

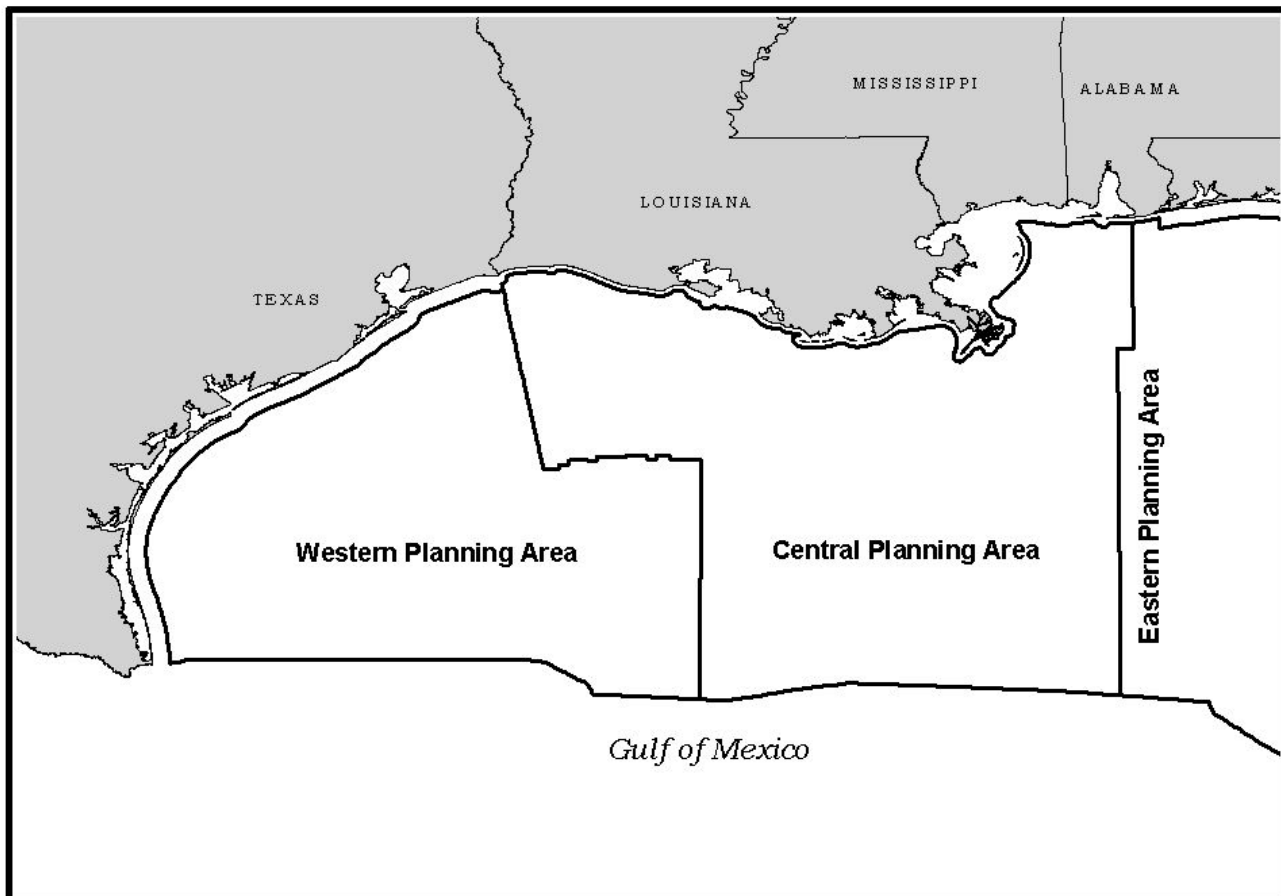
# Gulf of Mexico OCS Oil and Gas Lease Sales: 2003-2007

Central Planning Area Sales 185, 190, 194, 198, and 201

Western Planning Area Sales 187, 192, 196, and 200

## Final Environmental Impact Statement

Volume I: Chapters 1-10



U.S. Department of the Interior  
Minerals Management Service  
Gulf of Mexico OCS Region

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## REGIONAL DIRECTOR'S NOTE

In the *Outer Continental Shelf Oil and Gas Leasing Program: 2002-2007*, five annual areawide lease sales are scheduled for the Central Planning Area and five annual areawide lease sales are scheduled for the Western Planning Area. This environmental impact statement (EIS) addresses nine of these proposed Federal actions; a separate environmental analysis was prepared for the first proposed lease sale. Federal regulations allow for several related or similar proposals to be analyzed in one EIS (40 CFR 1502.4). Since each lease sale proposal and projected activities are very similar each year for each planning area, the Minerals Management Service (MMS) has prepared a single EIS for the nine Central and Western Gulf sales. An additional environmental analysis will be prepared for each proposed action after the initial one in each planning area. By eliminating essentially duplicate EIS's, MMS will be able focus the subsequent environmental reviews on new and changing issues.

The Gulf of Mexico Outer Continental Shelf (OCS) Region of MMS has been conducting environmental analyses of the effects of OCS oil and gas development since the inception of the National Environmental Policy Act (NEPA) of 1969. We have prepared and published more than 40 draft and final EIS's. Our goal has always been to provide factual, reliable, and clear analytical statements in order to inform decisionmakers and the public about the environmental effects of proposed OCS activities and their alternatives. We view the EIS process as providing a balanced forum for early identification, avoidance, and resolution of potential conflicts. It is in this spirit that we welcome comments on this document from all concerned parties.



Chris C. Oynes  
Regional Director  
Minerals Management Service  
Gulf of Mexico OCS Region

## COVER SHEET

### Environmental Impact Statement for Proposed Central Gulf of Mexico OCS Oil and Gas Lease Sales 185, 190, 194, 198, and 201, and Proposed Western Gulf of Mexico OCS Oil and Gas Lease Sales 187, 192, 196, and 200

	<b>Draft ( )</b>	<b>Final (x)</b>
<b>Type of Action:</b>	Administrative (x)	Legislative ( )
<b>Area of Potential Impact:</b>	Offshore Marine Environment and Coastal Counties/Parishes of Texas, Louisiana, Mississippi, Alabama, and northwestern Florida	

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## ABSTRACT

This Final Environmental Impact Statement (EIS) covers the proposed 2003-2007 Central and Western Gulf of Mexico OCS oil and gas lease sales. The proposed Central Gulf of Mexico lease sales are Sale 185 in 2003, Sale 190 in 2004, Sale 194 in 2005, Sale 198 in 2006, and Sale 201 in 2007; the proposed Western Gulf of Mexico lease sales are Sale 187 in 2003, Sale 192 in 2004, Sale 196 in 2005, and Sale 200 in 2007. The proposed actions are major Federal actions requiring an EIS. This document provides the following information in accordance with NEPA and its implementing regulations, and it will be used in making decisions on the proposal. This document includes the purpose and background of the proposed actions, identification of the alternatives, description of the affected environment, and an analysis of the potential environmental impacts of the proposed actions, alternatives, and associated activities, including proposed mitigating measures and their potential effects. Potential contributions to cumulative impacts resulting from activities associated with the proposed actions are also analyzed.

Hypothetical scenarios were developed on the levels of activities, accidental events (such as oil spills), and potential impacts that might result if a proposed action is adopted. Activities and disturbances associated with a proposed action on biological, physical, and socioeconomic resources are considered in the analyses.

Additional copies of this EIS and the referenced MMS publications and visuals may be obtained from the MMS, Gulf of Mexico OCS Region, Public Information Office (MS 5034), 1201 Elmwood Park Boulevard, New Orleans, Louisiana 70123-2394, or by telephone at 504-736-2519 or 1-800-200-GULF.

## SUMMARY

This environmental impact statement (EIS) addresses nine proposed Federal actions that offer for lease areas on the Gulf of Mexico Outer Continental Shelf (OCS) that may contain economically recoverable oil and gas resources. Under the proposed *Outer Continental Shelf Oil and Gas Leasing Program: 2002-2007* (the proposed 5-Year Program), five annual areawide lease sales are scheduled for the Central Planning Area (CPA) and five annual areawide lease sales are scheduled for the Western Planning Area (WPA). The first proposed lease sale – Western Gulf Sale 184 – is not addressed in this multisale EIS; a separate environmental analysis was done for Sale 184. The Central Gulf sales addressed in this EIS are Sale 185 in 2003, Sale 190 in 2004, Sale 194 in 2005, Sale 198 in 2006, and Sale 201 in 2007. The Western Gulf sales are Sale 187 in 2003, Sale 192 in 2004, Sale 196 in 2005, and Sale 200 in 2006. Federal regulations allow for several related or similar proposals to be analyzed in one EIS (40 CFR 1502.4). Since each lease sale proposal and projected activities are very similar each year for each planning area, a single EIS is being prepared for the nine Central and Western Gulf sales. At the completion of this EIS process, decisions will be made only for proposed Sale 185 in the CPA and proposed Sale 187 in the WPA. A National Environmental Policy Act (NEPA) review will be conducted before each subsequent lease sale.

### Proposed Actions and Alternatives

#### *Alternatives for Proposed Central Gulf Sales 185, 190, 194, 198, and 201*

*Alternative A – The Proposed Action(s):* This alternative would offer for lease all unleased blocks within the CPA for oil and gas operations (Figure 2-1), with the following exceptions: Lund South (Area NG16-07) Blocks 172, 173, 213-217, 252-261, 296-305, and 349; Amery Terrace (Area NG15-09) Blocks 280, 281, 318-320, and 355-359; and portions of Amery Terrace (Area NG15-09) Blocks 235-238, 273-279, and 309-359 are deferred from the proposed actions under the “Treaty Between The Government of the United States of America And The Government Of The United Mexican States on the Delimitation Of The Continental Shelf In the Western Gulf of Mexico Beyond 200 Nautical Miles,” which took effect in January 2001. The CPA encompasses about 47.8 million acres (ac) located from 4.8 to 354 km (3 to 220 mi) offshore in water depths ranging from 4 to more than 3,400 m (13 to more than 11,000 ft). No unleased areas are excluded from the CPA. The estimated amount of resources projected to be developed as a result of any one proposed CPA lease sale is 0.276-0.654 billion barrels of oil (BBO) and 1.590-3.300 trillion cubic feet (tcf) of gas.

*Alternative B – The Proposed Action(s) Excluding the Unleased Blocks Near Biologically Sensitive Topographic Features:* This alternative would offer for lease all unleased blocks in the CPA, as described for the proposed action(s), with the exception of any unleased blocks within the 167 blocks subject to the Topographic Features Stipulation.

*Alternative C – The Proposed Action(s) Excluding the Unleased Blocks within 15 Miles of the Baldwin County, Alabama, Coast:* This alternative would offer for lease all unleased blocks in the CPA, with the exception of any unleased blocks within 15 mi of the Baldwin County, Alabama, coast.

*Alternative D – No Action:* This alternative is equivalent to cancellation of one or more proposed CPA lease sales scheduled in the proposed *Outer Continental Shelf Oil and Gas Leasing Program: 2002-2007*. The opportunity for development of the estimated oil and gas resources that could have resulted from any proposed action(s) would be precluded or postponed, and any potential environmental impacts resulting from the proposed action(s) would not occur or would be postponed.

#### *Alternatives for Proposed Western Gulf Sales 187, 192, 196, and 200*

*Alternative A – The Proposed Action(s):* This alternative would offer for lease all unleased blocks within the WPA for oil and gas operations (Figure 2-1), with the following exceptions: High Island Area East Addition, South Extension, Blocks A-375 and A-398 and portions of other blocks within the Flower Garden Banks National Marine Sanctuary are excluded from leasing; Mustang Island Area Blocks 793, 799, and 816 have been identified by the Navy as needed for testing equipment and for training mine warfare personnel and have been removed from the proposed actions; and Sigsbee Escarpment (Area

NG15-08) Blocks 11, 57, 103, 148, 149, 194, 239, 284, and 331-341, and portions of Sigsbee Escarpment (Area NG15-08) Blocks 12-14, 58-60, 104-106, 150, 151, 195, 196, 240, 241, 285-298, and 342-349 and Keathley Canyon (Area NG15-05) Blocks 978-980 are deferred from the proposed actions under the "Treaty Between The Government of the United States of America And The Government Of The United Mexican States on the Delimitation Of The Continental Shelf In the Western Gulf of Mexico Beyond 200 Nautical Miles," which took effect in January 2001. The WPA encompasses about 28.4 million ac located from 14 to 357 km (9 to 220 mi) offshore in water depths ranging from 8 to more than 3,000 m (26 to more than 9,000 ft). The estimated amount of resources projected to be developed as a result of any one proposed WPA lease sale is 0.136-0.262 BBO and 0.810-1.440 tcf of gas.

*Alternative B – The Proposed Action(s) Excluding the Unleased Blocks Near Biologically Sensitive Topographic Features:* This alternative would offer for lease all unleased blocks in the WPA, as described for the proposed action(s), with the exception of any unleased blocks within the 200 blocks subject to the Topographic Features Stipulation.

*Alternative C – No Action:* This alternative is equivalent to cancellation of one or more proposed WPA lease sales scheduled in the proposed *Outer Continental Shelf Oil and Gas Leasing Program: 2002-2007*. The opportunity for development of the estimated oil and gas resources that could have resulted from any proposed action(s) would be precluded or postponed, and any potential environmental impacts resulting from the proposed action(s) would not occur or would be postponed.

## Mitigating Measures

All of the proposed actions include existing regulations and proposed lease stipulations designed to reduce environmental risks. Five lease stipulations are included as part of each of the proposed actions in the CPA: the Live Bottom (Pinnacle Trend) Stipulation; the Topographic Features Stipulation; the Military Areas Stipulation; the Blocks South of Baldwin County, Alabama, Stipulation; and the Law of the Sea Convention Royalty Payment Stipulation. Four lease stipulations are included as part of each of the proposed actions in the WPA: the Topographic Features Stipulation; the Military Areas Stipulation; the Naval Mine Warfare Area Stipulation; and the Law of the Sea Convention Royalty Payment Stipulation. The Live Bottom (Pinnacle Trend) Stipulation requires detection and avoidance of sensitive pinnacle features. The Topographic Features Stipulations establish "No Activity Zones" around 16 banks in the CPA and 23 banks in the WPA. The military stipulations are intended to reduce potential multiple-use conflicts between OCS operations and Department of Defense activities. The Blocks South of Baldwin County, Alabama, Stipulation reduces visual impacts from development operations. The Law of the Sea Convention Royalty Payment Stipulation applies to blocks or portions of blocks beyond the United States (U.S.) Exclusive Economic Zone (EEZ) (generally greater than 200 nautical miles (nmi) from the U.S. coastline). Leases on these blocks may be subject to special royalty payments under the provisions of the 1982 Law of the Sea Convention, if the U.S. becomes a party to the Convention prior to or during the life of the lease.

Application of these stipulations will be considered by the Assistant Secretary of the Interior for Land and Minerals (ASLM). The analysis of the stipulations as part of the proposed actions does not ensure that the ASLM will make a decision to apply the stipulations to leases that may result from any proposed lease sale, nor does it preclude minor modifications in wording during subsequent steps in the prelease process if comments indicate changes are necessary or if conditions change. Any stipulations or mitigation requirements to be included in a lease sale will be described in the Record of Decision and Final Notice of Sale for that lease sale. Mitigation measures in the form of lease stipulations are added to the lease terms and are therefore enforceable as part of the lease.

## Scenarios Analyzed

The proposed CPA and WPA actions analyzed are expected to be "typical" of any of the Central and Western Gulf sales, respectively, held during 2003-2007. The proposed action and OCS Program scenarios analyzed in the EIS are based on projections of the activities needed to support the exploitation of the oil and gas resources on leases resulting from a sale. The scenarios are presented as ranges of the amounts of undiscovered, unleased hydrocarbon resources estimated to be leased and discovered as a result of a proposed action. The analyses are based on an assumed range of activities that would be

needed to develop and produce the amount of resources estimated to be leased. These activities include the number of platforms, wells, pipelines, and service-vessel trips.

The cumulative analysis considers environmental impacts that result from the incremental impact of the lease sales when added to all past, present, and reasonably foreseeable future human activities, including non-OCS activities such as import tankering and commercial fishing, as well as all OCS activities.

## **Significant Issues**

The major issues that frame the environmental analyses in this EIS are the result of concerns raised during years of scoping for Gulf of Mexico OCS lease sale EIS's. Issues related to OCS exploration, development, production, and transportation activities include oil spills, wetlands loss, air emissions, discharges, water quality degradation, trash and debris, structure and pipeline emplacement activities, platform removal, vessel and helicopter traffic, multiple-use conflicts, support services, population fluctuations, demands on public services, land-use planning, tourism, aesthetic interference, cultural impacts, environmental justice, and consistency with State coastal zone management programs. Environmental resources and activities determined through the scoping process to warrant an environmental analysis are sensitive coastal environments, sensitive offshore resources, water and air quality, marine mammals, sea turtles, coastal and marine birds, commercial fisheries, recreational resources and activities, archaeological resources, and socioeconomic conditions.

## **Impact Conclusions**

A summary of the potential impacts on each environmental resource and the conclusions of the analyses can be found in Chapters 2.3.1 and 2.4.1. The full analyses are presented in Chapters 4.2 (impacts of routine activities from a proposed action in the CPA), 4.3 (impacts of routine activities from a proposed action in the WPA), and 4.4 (impacts from accidental events). An analysis of cumulative impacts is provided in Chapter 4.5. Below is a general summary of the potential impacts resulting from typical proposed actions.

### ***Impacts on Sensitive Coastal Resources***

No significant impacts to the physical shape and structure of barrier beaches and associated dunes are expected to occur as a result of a proposed action in the CPA or WPA. Should a spill contact a barrier beach, sand removal during cleanup activities is expected to be minimized.

Adverse initial impacts and more importantly secondary impacts of pipeline and navigation canals are considered the most significant proposed-action-related impacts to wetlands. Although initial impacts are considered locally significant and are largely limited to where OCS-related canals and channels pass through wetlands, secondary impacts may have substantial, progressive, and cumulative adverse impacts to the hydrologic basin or subbasin in which they are found. Offshore oil spills resulting from a proposed action are not expected to significantly damage inland wetlands. The greatest threat to wetland habitat is from an inland spill from a vessel accident or pipeline rupture. While a resulting slick may cause minor impacts to wetland habitat, equipment and personnel used to clean up a slick over the impacted area may generate the greatest direct impacts to the area.

Normal OCS activities are expected to have little adverse impact on seagrass communities. Impacts from pipeline installation activities are expected to be very small and short-term. Inshore spills from vessel collisions or pipeline ruptures pose the greatest potential threat to seagrass communities.

No significant impacts to listed beach mice are expected to occur as a result of a proposed action in the CPA or WPA. Adverse impacts to Alabama, Choctawhatchee, St. Andrew, and Perdido Key beach mice in the CPA are unlikely. Impacts may result from consumption of beach trash and debris. No direct impacts from oil spill are expected. Protective measures required under the Endangered Species Act should prevent any oil-spill response and cleanup activities from having significant impact to the beach mice and their habitat.

Adverse impacts on endangered/threatened and nonendangered/nonthreatened coastal and marine birds are expected to be sublethal. These effects include behavior changes, eating OCS-related contaminants or discarded debris, and displacement of localized groups from optimal habitats. Chronic

sublethal stress, however, is often undetectable in birds. As a result of stress, individuals may weaken and be prone to infection or disease, have reduced reproductive success, or have disturbed migration patterns. Oil spills pose the greatest potential direct and indirect impacts to coastal and marine birds. If physical oiling of individuals or local groups of birds occurs, some degree of both acute and chronic physiological stress associated with direct and secondary uptake of oil would be expected. Low levels of oil could stress birds by interfering with food detection, feeding impulses, predator avoidance, territory definition, homing of migratory species, susceptibility to physiological disorders, disease resistance, growth rates, reproduction, and respiration. Reproductive success can be affected by the toxins in oil. Indirect effects occur by fouling of nesting habitat, and displacement of individuals, breeding pairs, or populations to less favorable habitats. Dispersants used in spill cleanup activity can have toxic effects similar to oil on the reproductive success of coastal and marine birds. The air, vehicle, and foot traffic that takes place during shoreline cleanup activity can disturb nesting populations and degrade or destroy habitat.

Routine activities resulting from a proposed action in the CPA are expected to have little impacts on Gulf sturgeon. Impacts on Gulf sturgeon may occur from resuspended sediments and OCS-related discharges. Contact with spilled oil could cause irritation of gill epithelium and disturbance of liver function in Gulf sturgeon.

Impacts to coastal water quality from a proposed action in the CPA or WPA are expected to be minimal. The primary impacting sources to water quality in coastal waters are point-source and nonpoint-source discharges from OCS support facilities and support-vessel discharges.

Emissions of pollutants into the atmosphere from the activities associated with a proposed action are not projected to have significant impacts on onshore air quality. Emissions from OCS activity are not expected to have concentrations that would change onshore air-quality classifications. Increases in onshore annual average concentrations of  $\text{NO}_x$ ,  $\text{SO}_x$ , and  $\text{PM}_{10}$  are estimated to be less than the maximum increases allowed in the PSD Class II areas or the PSD Class I area.

The impact from a proposed action in the CPA or WPA on Gulf Coast recreational beaches is expected to be minimal. A proposed action may result in an incremental increase in noise from helicopter and vessel traffic, nearshore operations that may adversely affect the enjoyment of some Gulf Coast beach uses, and some increases in beached debris; these impacts are expected to have little effect on the number of beach users. Impacts from oil spills are expected to be short-term and localized; a large volume of oil contacting a recreational beach could close the area to recreational use for up to 30 days.

Routine activities associated with a proposed action in the CPA or WPA are not expected to impact coastal historic archaeological resources. It is very unlikely that an oil spill would occur and contact coastal historic archaeological sites from accidental events associated with a proposed action in the CPA or WPA. The major effect from an oil-spill impact would be visual contamination of a historic coastal site, such as a historic fort or lighthouse. As historic archaeological sites are protected under law, it is expected that any spill cleanup operations would be conducted in such a way as to cause little or no impacts to historic archaeological resources. These impacts would be temporary and reversible.

A proposed action in the CPA or WPA is not expected to result in impacts to coastal prehistoric archaeological sites; however, should such an impact occur, unique or significant archaeological information could be lost. It is unlikely that an oil spill would occur and contact coastal, barrier island prehistoric sites as a result of a proposed action in the CPA or WPA. Should a spill contact an archaeological site, unique or significant archaeological information could be irreversibly damaged or lost; damage might include loss of radiocarbon-dating potential, direct impact from oil-spill cleanup equipment, and/or looting. Previously unrecorded sites could be impacted by oil-spill cleanup operations on beaches.

Activities resulting from a proposed action in the CPA or WPA are expected to minimally affect the analysis area's land use, infrastructure, or demographic characteristics of the Gulf coastal communities. A proposed action is expected to generate less than a 1 percent increase in employment in the Texas, Louisiana, Mississippi, and Alabama subareas. Nowhere would these impacts be significant because demand will be met primarily with the existing population and available labor force. Accidental events such as oil or chemical spills, blowouts, and vessel collisions would have no effects on land use or demographics. Coastal or nearshore spills could have short-term adverse effects on coastal infrastructure requiring cleanup of any oil or chemicals spilled. The opportunity costs associated with oil-spill cleanup activities are expected to be temporary and of short duration.



A proposed action in the CPA or WPA is not expected to have a disproportionate effect on low-income or minority populations. Impacts related to a proposed action are expected to be economic and have a limited but positive effect on these populations. Accidental spill events associated with a proposed action are not expected to have disproportionate adverse environmental or health effects on minority or low-income people.

### ***Impacts on Sensitive Offshore Environments***

Adverse impacts to pinnacles or topographic features from routine activities resulting from a proposed action in the CPA or WPA are not expected because the Live Bottom (Pinnacle Trend) Stipulation and Topographic Features Stipulations establish requirements for setbacks from these features. Adverse impacts from accidental seafloor oil releases or blowouts are expected to be rare because drilling and pipeline operations are not permitted in the vicinity of pinnacles or topographic features and because both pinnacles and topographic features are small in size and dispersed within the areas that they occur; no community-wide impacts are expected. If contact were to occur between diluted oil and adult sessile biota, including coral colonies in the case of the Flower Garden Banks, the effects would be primarily sublethal and there would be limited incidents of mortality.

No adverse impacts to the ecological function or biological productivity of the widespread, low-density chemosynthetic communities or to the widespread, typical, deep-sea benthic communities are expected to occur as a result of a routine activities or accidental events resulting from a proposed action in the CPA or WPA. The potential for adverse impacts to the rarer, widely scattered, high-density, Bush Hill-type chemosynthetic communities are expected to be greatly reduced by the requirement for OCS activities to avoid potential chemosynthetic communities by a minimum of 1,500 ft (NTL 2000-G20). High-density chemosynthetic communities could experience minor impacts from drilling discharges or resuspended sediments located at more than 1,500 ft away.

Impacts to marine water quality occur from discharges of drilling fluids and cuttings during exploration and production. Impacts to marine water quality are expected to be minimal as long as all regulatory requirements are met. Spills <1,000 bbl are not expected to significantly impact marine water quality. Larger spills, however, could impact marine water quality. Chemical spills, the accidental release of SBF, and blowouts are expected to have temporary localized impacts on marine water quality.

Emission of pollutants into the atmosphere from offshore facilities are not expected to significantly impact offshore air quality because of emission heights and rates. Accidents involving high concentrations of H<sub>2</sub>S could result in deaths as well as environmental damage. Other emissions of pollutants into the atmosphere from accidental events as a result of a proposed action are not projected to have significant impacts.

The routine activities related to a proposed action in the CPA or WPA are not expected to have long-term adverse effects on the size and productivity of any marine mammal species or population stock endemic to the northern Gulf of Mexico. Routine OCS activities are expected to have impacts that are sublethal. Small number of marine mammals could be harmed or killed by chance collisions with service vessels and by eating indigestible trash and plastic debris from proposed-action-related activities. Lethal “takes” due to explosive removal of OCS platform or production facilities are not expected because of established mitigation measures. Populations of marine mammals in the northern Gulf are expected to be exposed to residuals of oils spilled as a result of a proposed action during their lifetimes. Chronic or acute exposure may result in the harassment, harm, or mortality to marine mammals occurring in the northern Gulf. In most foreseeable cases, exposure to hydrocarbons persisting in the sea following the dispersal of an oil slick will result in sublethal impacts to marine mammals.

The routine activities resulting from a proposed action in the CPA or WPA are unlikely to have significant adverse effects on the size and recovery of any sea turtle species or population in the Gulf of Mexico. Routine activities are expected to have impacts that are sublethal. Adverse impacts are localized degradation of water quality from operational discharges near platforms; noise from helicopters, service vessels platform and drillship operations; and disorientation caused by brightly-lit platforms. Sea turtles could be harmed or killed from chance collisions with service vessels and from eating floating plastic debris from proposed-action-related activities. Lethal “takes” due to explosive removals of OCS facilities are expected to be rare due to established mitigation measures (e.g., NMFS Observer Program). Accidental blowouts, oil spills, and spill-response activities resulting from a proposed action have the potential to impact small to large numbers of sea turtles in the Gulf of Mexico. Populations of sea turtles

in the northern Gulf will be exposed to residuals of oils spilled as a result of a proposed action during their lifetimes. Chronic or acute exposure may result in the harassment, harm, or mortality to sea turtles occurring in the northern Gulf. In most foreseeable cases, exposure to hydrocarbons persisting in the sea following the dispersal of an oil slick will result in sublethal impacts to sea turtles. Death would likely occur to sea turtle hatchlings exposed to, becoming fouled by, or consuming tarballs.

A less than 1 percent decrease in fish resources and/or standing stocks or in essential fish habitat (EFH) would be expected as a result of a proposed action in the CPA or WPA. Coastal and marine environmental degradation resulting from a proposed action is expected to have little effect on fish resources or EFH. Recovery of fish resources and EFH can occur from more than 99 percent, but not all, of the expected coastal and marine environmental degradation. Fish populations, if left undisturbed, would regenerate in one generation, but any loss of wetlands as EFH would be permanent. Impacts are expected to result in less than a 1 percent change in commercial fishing “pounds landed” or in the value of landings. Oil spills estimated to result for a proposed action would cause less than a 1 percent decrease in standing stocks of any population, commercial fishing efforts, landings, or value of those landings. The resultant impact on fish populations and commercial fishing activities within the CPA or WPA lease sale areas would be negligible and indistinguishable from variations due to natural causes. Any affected commercial fishing activity would recover within 6 months.

Routine activities associated with a proposed action in the CPA or WPA are not expected to impact offshore historic or prehistoric archaeological resources. The greatest potential impact to an offshore historic archaeological resource would result from direct contact between an offshore activity and a historic shipwreck. The archaeological survey and archaeological clearance required prior oil and gas activities on a lease are expected to be highly effective (90%) at identifying and protecting archaeological resources. Offshore oil and gas activities resulting from a proposed action could contact a shipwreck because of incomplete knowledge on the location of shipwrecks in the Gulf. Although this occurrence is not probable, such an event could result in the disturbance or destruction of important historic archaeological information. Should an offshore prehistoric archaeological site be contacted by proposed-action-related activities, unique or significant archaeological information could be lost.

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## ABBREVIATIONS AND ACRONYMS

ACAA	Alabama Coastal Area Act	CSA	Continental Shelf Associates
ACAMP	Alabama Coastal Area Management Plan	CWA	Clean Water Act
ACP	Area Contingency Plans	CWPPRA	Coastal Wetlands Protection, Planning & Restoration Act
ACT	American College Test	CZARA	Coastal Zone Act Reauthorization Amendments of 1990
ADNCR	Alabama Department of Conservation and Natural Resources	CZM	Coastal Zone Management
ADEM	Alabama Department of Environmental Management	CZMA	Coastal Zone Management Act
AHTS	anchor-handling towing supply/mooring vessels	CZPA	Coastal Zone Protection Act of 1996
ANWR	Aransas National Wildlife Refuge	DGD	Dual gradient drilling
APD	Application for Permit to Drill	DOCD	Development Operations Coordination Document
API	American Petroleum Institute	DOD	Department of Defense (U.S.)
ASLM	Assistant Secretary of the Interior for Land and Minerals	DOI	Department of the Interior (U.S.) (also: USDOl)
ASMFC	Atlantic States Marine Fisheries Commission	DOT	Department of Transportation (U.S.) (also: USDOT)
ATB	articulated tug barge	DP	dynamically positioned
BACT	best available control technology	DWOP	Deepwater Operations Plan
BAST	best available and safest technology	dwt	dead weight tonnage
bbl	barrel	E&D	exploration and development
BBO	billion barrels of oil	E&P	exploration and production
BOE	barrels of oil equivalent	EA	environmental assessment
BBOE	billion barrel of oil equivalent	EEZ	Exclusive Economic Zone
Bcf	billion cubic feet	EFH	Essential Fish Habitat
BO	Biological Opinion	e.g.	for example
BOD	biochemical oxygen demand	EIA	Energy Information Administration (USDOE)
BOP	blowout preventer	EIS	environmental impact statement
B.P.	before present	EP	Exploration Plan
BRD	Biological Resources Division (USGS)	EPA	Eastern Planning Area
CAA	Clean Air Act of 1970	ESA	Endangered Species Act of 1973
CAAA	Clean Air Act Amendments of 1990	ESI	Environmental Sensitivity Indices
Call	Call for Information and Nominations	ESP	Environmental Studies Plan
CBRA	Coastal Barrier Resources Act	et al.	and others
CBRS	Coastal Barrier Resource System	et seq.	and the following
CCA	Coastal Coordination Act (Texas)	EWTA	Eglin Water Test Area
CCMP	Comprehensive Conservation and Management Plan	FAA	Federal Aviation Administration
CD	Consistency Determination	FCF	Fishermen's Contingency Fund
CDP	common-depth-point (seismic surveying)	FDA	Food and Drug Administration
CEI	Coastal Environments, Inc.	FDEP	Florida Department of Environmental Protection
CEQ	Council on Environmental Quality	FERC	Federal Energy Regulatory Commission
CER	categorical exclusion review	FMC	Fishery Management Council
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980	FMP	Fishery Management Plan
cf.	compare, see	FPS	floating production system
CFDL	Coastal Facilities Designation Line (Texas)	FPSO	floating production, storage, and offloading system
CFR	Code of Federal Regulations	FR	<i>Federal Register</i>
CIAP	Coastal Impact Assistance Program	FWS	Fish and Wildlife Service
CIS	corrosion inhibiting substance	G&G	geological and geophysical
CNG	compressed natural gas	GEMS	Gulf Ecological Management Site
CNRA	Coastal Natural Resources Area	GERG	Geochemical and Environmental Research Group
COE	Corps of Engineers (U.S. Army)	GINs	Gulf Islands National Seashore
COF	covered offshore facilities	GIS	geographical information system
CPA	Central Planning Area	GIWW	Gulf Intracoastal Waterway

GLPC	Greater Lafourche Port Commission	MPRS	Marine Protection, Research, and Sanctuaries Act of 1972
GMAQS	Gulf of Mexico Air Quality Study	MTBE	methyl tertiary butyl ether
GMFMC	Gulf of Mexico Fishery Management Council	Mya	Million years ago
GMP	Gulf of Mexico Program	NAAQS	National Ambient Air Quality Standards
GOM	Gulf of Mexico	NACE	National Association of Corrosion Engineers
GPS	global positioning system	NARP	National Artificial Reef Plan
GS	Geological Survey (also: USGS)	NAS	National Academy of Sciences
GSA	Geological Survey of Alabama	NEP	National Estuary Program
GSMFC	Gulf States Marine Fisheries Commission	NEPA	National Environmental Policy Act
GTFP	green turtle fibropapillomatosis	NERBC	New England River Basins Commission
HAPC	Habitat Areas of Particular Concern	NFEA	National Fishing Enhancement Act
HMS	highly migratory species	NGL	natural-gas liquids
IADC	International Association of Drilling Contractors	NGVD	National Geodetic Vertical Depth
i.e.	specifically	NHAP	National Historic Preservation Act
INTERMAR	International Activities and Marine Minerals Division (MMS)	NHS	National Highway System
IT	incidental take	NMFS	National Marine Fisheries Service
LA	Louisiana	NMS	National Marine Sanctuary
LADNR	Louisiana Department of Natural Resources (also: LDNR)	NOAA	National Oceanic and Atmospheric Administration
LARI	Louisiana Artificial Reef Initiative	NOI	Notice of Intent to Prepare an EIS
LATEX	Texas-Louisiana Shelf Circulation and Transport Process Program (MMS-funded study)	NORM	naturally occurring radioactive material
LCE	Loop Current Eddy	NOS	National Ocean Service
LCRP	Louisiana Coastal Resources Program	NOSAC	National Offshore Safety Advisory Committee
LDNR	Louisiana Department of Natural Resources (also: LADNR)	NOW	nonhazardous oil-field waste
LNG	liquefied natural gas	NPDES	National Pollutant and Discharge Elimination System
LOOP	Louisiana Offshore Oil Port	NPFC	National Pollution Funds Center
LPG	liquefied petroleum gas	NPS	National Park Service
LSU	Louisiana State University	NRC	National Research Council
MAFLA	Mississippi, Alabama, and Florida	NRDA	Natural Resource Damage Assessment
MARPOL	International Convention for the Prevention of Pollution from Ships	NTL	Notice to Lessees and Operators
Mcf	thousand cubic feet	NWRC	National Wetland Research Center
MCP	Mississippi Coastal Program	OBF	oil-based drilling fluids
MFCMA	Magnuson Fishery Conservation and Management Act of 1976	OCD	Offshore and Coastal Dispersion model
MRGO	Mississippi River Gulf Outlet	OCRM	Office of Ocean and Coastal Resource Management
Mbbl	thousand barrels	OCS	Outer Continental Shelf
MMbbl	million barrels	OCSLA	Outer Continental Shelf Lands Act
MMBOE	million barrels of oil equivalent	ODD	Ocean Disposal Database
MMC	Marine Mammal Commission	OPA	Oil Pollution Act of 1990
MMPA	Marine Mammal Protection Act of 1972	OPA 90	Oil Pollution Act of 1990
MMS	Minerals Management Service	OPEC	Organization for Petroleum Exporting Countries
MPA	Marine Protected Area	OSCP	Oil Spill Contingency Plan
MSA	Metropolitan Statistical Area	OSFR	oil-spill financial responsibility
MSD	marine sanitation device	OSM	Office of Safety Management
MSRC	Marine Spill Response Corporation	OSRA	Oil Spill Risk Analysis
MSW	municipal solid waste	OSRO	Oil Spill Removal Organization
Mta	million metric tons annually	OSRP	oil-spill response plans
MODU	mobile offshore drilling unit	OSTLF	Oil Spill Liability Trust Fund
MOU	Memorandum of Understanding	OSV	offshore supply vessels
MPPRCA	Marine Plastic Pollution Research and Control Act of 1987	P.L.	Public Law
		PAH	polynuclear aromatic hydrocarbon
		PCB	polychlorinated biphenyl
		PINC	Potential Incident of Noncompliance
		PINS	Padre Island National Seashore
		PM <sub>10</sub>	particulate matter smaller than 10 microns

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ppm	parts per million	TA&R	Technical Assessment & Research Program (MMS)
PSD	Prevention of Significant Deterioration	TAAS	Texas Assessment of Academic Skills
PSI	pounds per square inch	TAMU	Texas A&M University
PSV	platform supply vessel	tcf	trillion cubic feet
R&D	research and development	TCMP	Texas Coastal Management Plan
RCRA	Resource Conservation and Recovery Act	TD	total depth
RD	Regional Director	TED	turtle excluder device
RFG	reformulated motor gasoline	TGLO	Texas General Land Office
ROTAC	Regional Operations Technology Assessment Committee	THC	total hydrocarbon content
ROV	remotely operated vehicle	TIMS	Technical Information Management System (MMS)
RP	Recommended Practice	TLP	tension leg platform
RTR	Rigs-to-Reef	TRW	topographic Rossby wave
SAFMC	South Atlantic Fishery Management Councils	TSP	total suspended particulate matter
SARA	Superfund Amendments and Reauthorization Act	TSS	traffic separation schemes
SAT	School-based Administration Test	TWC	treatment, workover, and completion
SBF	synthetic-based drilling fluid	TX	Texas
SEAMAP	Southeastern Area Monitoring and Assessment Program	U.S.	United States
SEIS	supplemental environmental impact statement	U.S.C.	United States Code
SIC	Standard Industrial Classification	USCG	U.S. Coast Guard
SIP	State implementation program	USDOC	U.S. Department of Commerce
SOLAS	Safety of Life at Sea	USDOl	U.S. Department of the Interior (also: DOI)
sp.	species	USDOT	U.S. Department of Transportation
spp.	multiple species	USEPA	U.S. Environmental Protection Agency
Stat.	Statutes	USGS	United States Geological Survey (also: GS)
		VOC	volatile organic compounds
		WBF	water-based drilling fluids
		WBNP	Wood Buffalo National Park
		WPA	Western Planning Area

## CONVERSION CHART

Measurements in this EIS are given in SI metric units (International System of Units) except where U.S. units are the accepted standard (for example, altitudes for aircraft). For the reader's convenience, both SI metric and U.S. customary units are included in the Summary. Factors for converting SI metric to U.S. customary units are provided in the following table.

To convert from	To	Multiply by
millimeter (mm)	inch (in)	0.03937
centimeter (cm)	inch (in)	0.3937
meter (m)	foot (ft)	3.281
kilometer (km)	mile (mi)	0.6214
meter <sup>2</sup> (m <sup>2</sup> )	foot <sup>2</sup> (ft <sup>2</sup> )	10.76
	yard <sup>2</sup> (yd <sup>2</sup> )	1.196
	acre (ac)	0.0002471
hectare (ha)	acre (ac)	2.47
kilometer <sup>2</sup> (km <sup>2</sup> )	mile <sup>2</sup> (mi <sup>2</sup> )	0.3861
meter <sup>3</sup> (m <sup>3</sup> )	foot <sup>3</sup> (ft <sup>3</sup> )	35.31
yard <sup>3</sup> (yd <sup>3</sup> )	1.308	
liter (l)	gallons (gal)	0.2642
degree Celsius (°C)	degree Fahrenheit (°F)	°F = (1.8 x °C) + 32
1 barrel (bbl) = 42 gal = 158.9 l = approximately 0.1428 metric tons		
1 nautical mile (nmi) = 6,076 ft or 1.15 mi		